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Analysis of the effectiveness of a cereal milling by product monocomponent medium for the low cost production of *Bacillus thuringiensis*

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Bacillus thuringiensis is a facultative anaerobe, gram positive, spore forming bacterium. The biotechnological importance of this bacterium resides in its ability to produce, during sporulation, crystal proteins known asδ-endotoxins which express specific insecticidal activity. At industrial scale, the culture media represents an important part of ***B. thuringiensis*** based biopesticides production cost. According to the literature, different agro-industrial residues and byproducts were used as sources of proteins in order to reduce the cost of ***B. thuringiensis*** culture medium, but carbohydrates (glucose, starch or molasses) and/or mineral sources were added.

In this work, a cereal milling by-product (CMB) as a monocomponent medium was investigated and compared to synthetic mediums in terms ofδ-endotoxin yield and productivity in submerged fermentation of different strains of *B. thuringiensis*. The CMB was shown efficient to be used as a complete substrate (source of proteins, carbohydrates and minerals) for ***B. thuringiensis*** production. The optimal CMB ratio in the culture medium was found to be 6% in shake flasks experiments. The consumption of the CMB sugars by the bacteria was analyzed. Production of the bio-insecticide in lab-bioreactor in controlled conditions was equally performed to give basic elements for extrapolation in industrial conditions.

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